

TEACHER EXTENSIONS

Extension Activity Two: Oyster Filter Activity

Objective: Students will build a filter to model the filtering action of oysters.

Materials: plastic cups, coffee filters, pieces of sponge, paper towel, tape and cloth.

Procedures:

Hand out materials to students and tell them that they must simulate the filtering function that oysters provide to estuarine waters.

Explain to students that the small bowl of clean water represents the Bay before colonists arrived and settled in the area.

Add small amount of dirt to the water.

Explain to students that during this time, before settlement, the water was not “crystal clear” because nutrients – phytoplankton, and sediment existed in the water. The difference between then and now is that during the 15th century and before there were lots of trees, no livestock (cows, pigs, goats, horses) grazing the land, and lots of healthy, big oyster reefs.

Pour small amount of slightly dirty water into filter (Filter - place 1 coffee filter in colander and place colander on empty bowl).

Once the colonists arrived, they began to cut down trees for fields and houses and allowed their animals to graze in areas such as marshes. This meant that the amount of sediments and nutrients washing into the water increased. As time progressed, the amount of development increased and something else increased too ... we also began to harvest more and more oysters from the Bay.

*Activity Direction:

-Add the rest of the dirt to the water.

-Ask the students what the dirty water has to do oysters – what is the connection?

- Pre-colonial period of the Bay’s history had less sediment & nutrients being washed into the Bay and higher concentrations of oysters. This meant that there was increased water clarity and healthier water quality. The growth of settlement in the Chesapeake Bay watershed has increased the amount of sediment and nutrients in the water and another force at work is that we have been removing oysters from the Bay, which takes away filtering capacity. The end result of these actions is that we have overloaded the system and reduced the amount of local, natural regulators.

*Activity Direction:

-Ask students what we can do to improve the dirty water.

- As you are getting answers from students (just take a few) and discussing the possible answers, begin to pour the rest of the dirty water into the filter.
- We need to create better ways to reduce and manage what washes off the land into the water, i.e. nutrients and sediment, and also work to increase and protect oysters. Hopefully, by working towards both of these goals we can begin to improve water clarity and quality in the Bay.
- The role of oysters in the Bay is not limited to solely filtering algae out of the water. Indeed, filtering is an important function; yet, the oyster provides another equally, if not greater, benefit to the Chesapeake Bay. Oysters, through the reef structures they form, serve as an extremely important habitat for different organisms in the Bay.



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